C1 cont said integrin subunit α10, wherein the cells or tissues are of animal including human origin.

C2 32. (Amended) The method of claim 31, whereby said fragment is a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain, and the spliced domain.

Amd D19 33. (Twice Amended) The method of claim 31, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

C3 34. (Twice Amended) The method of claim 31, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of No. of SEQ ID NO. 2.

35. (Twice Amended) The method of claim 31, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID No. 1.

36. (Amended) The method of claim 31, whereby the subunit β is β1.

C4 37. (Amended) The method of claim 31, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

38. (Twice Amended) The method of claim 31, which process issued during pathological conditions involving said subunit α10.

39. (Amended) The method of claim 38, which pathological conditions comprise damage of cartilage.

40. (Amended) The method of claim 38, which pathological conditions comprise trauma, rheumatoid arthritis and osteoarthritis.

41. (Twice Amended) The method of claim 31, which is a process for detecting the formation of cartilage during embryonal development.

C4 Cont

42. (Twice Amended) The method of claim 31, which is a process for detecting physiological or therapeutic reparation of cartilage.

43. (Twice Amended) The method of claim 31, which is a process for selection and analysis, or for sorting, isolating, or purification of chondrocytes.

44. (Twice Amended) The method of claim 31, which is a process for detecting regeneration of cartilage or chondrocytes during transplantation of cartilage or chondrocytes.

C4 Cont

45. (Twice Amended) The method of claim 31, which is a process for in vitro studies of differentiation of chondrocytes.

Amd D2d

C5

46. (Twice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 *in vitro*, comprising using an amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit or to homologues or fragments thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin.

C6

47. (Amended) The method of claim 46, whereby said fragment is a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain and the spliced domain.

Amd D3d

48. (Twice Amended) The method of claim 46, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

C7

49. (Twice Amended) The method of claim 46, were said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

D21 C7 Cont

50. (Twice Amended) The method of claim 46, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid No. 337 of SEQ ID No. 2.

C8

51. (Amended) The method of claim 46, whereby the subunit β is β1.

Amd D22 C9

52. (Three Times Amended) The method of claim 46, comprising detecting the presence of an integrin subunit α10 comprising the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4 or of an integrin heterodimer comprising said subunit α10 and a subunit β, or of homologues or fragments thereof having essentially the same biological activity.

C10

53. (Twice Amended) The method of claim 46, which process is a process for determining the differentiation-state of cells during embryonic development, angiogenesis, or development of cancer.

Amd D23 C11

54. (Twice Amended) A method for detecting the presence of a integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1.

55. (Amended) The method of claim 54, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

C12

56. (Amended) The method of claim 54, whereby said fragment is a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain and the spliced domain.

Amt D25

57. (Twice Amended) The method of claim 54, whereby said fragment peptide comprising the amino acid sequence SEQ ID NO: 7.

C13

58. (Twice Amended) The method of claim 54, whereby said fragment comprises the amino acid sequence from about amino acid No. 952 to about amino acid no. 986 of SEQ. ID NO: 2.

Amt D26

59. (Amended) The method of claim 54, whereby said fragment comprises the amino acid sequence from about amino acid No. 140 to about amino acid No. 337 of SEQ ID NO: 1.

C14

60. (Twice Amended) The method of claim 54, which is a process for determining the differentiation-state of cells during development, in pathological conditions, in tissue regeneration, or in therapeutic and physiological reparation of cartilage.

61. (Amended) The method of claim 60, wherein the pathological conditions are any pathological conditions involving the integrin subunit α10.

62. (Amended) The method of claim 61, whereby said pathological conditions are rheumatoid arthritis, osteoarthrosis or cancer.

C14 cont

63. (Amended) The method of claim 60, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

64. (Twice Amended) A method of determining the differentiation-state of cells during development *in vitro*, in pathological conditions, in tissue regeneration and in therapeutic and physiological reparation of cartilage, a polynucleotide or oligonucleotide chosen from the nucleotide sequence shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α10.

C15

65. (Amended) The method of claim 64, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide chosen form the group comprising peptides of the cytoplasmic domain, the I-domain and the spliced domain.

C16

66. (Twice Amended) The method of claim 65, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide comprising the amino acid sequence SEQ ID No. 7.

C17

67. (Twice Amended) The method of claim 65, whereby said peptide comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID No. 2.

68. (Twice Amended) The method of claim 65, whereby said peptide comprises the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID No. 2.

69. (Amended) The method of claim 65, whereby said pathological conditions are any pathological conditions involving the integrin subunit α10.

C18

70. (Amended) The method of claim 69, whereby said pathological conditions are rheumatoid arthritis, osteoarthrosis or cancer.

71. (Amended) The method of claim 69, whereby said pathological conditions are atherosclerosis or inflammation.

C18

72. (Twice Amended) The method of claim 64, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

C19

77. (Amended) A method of using the integrin subunit α10 as a marker or target in transplantation of cartilage or chondrocytes *in vitro*.

AM'd 29 D

C20

78. (Twice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 *in vitro* comprising binding the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β or to homologues or fragments thereof having essentially the same biological activity, for promoting adhesion of chondrocytes and/or osteoblasts to surfaces of implants to stimulate osseointegration.

AM'd 30 D

C21

79. (Amended) A method of detecting the presence of integrin binding entities *in vitro*, comprising interacting an integrin heterodimer comprising a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, with a sample, thereby causing said integrin, subunit α10, or homologue or fragment thereof, to modulate the binding to its natural ligand or other proteins present in said sample.

80. (Amended) A method of studying consequences of the interaction of a human heterodimer integrin *in vitro*, comprising interacting a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, with an integrin binding entity and thereby initiating a cellular reaction.

81. (Amended) The method of claim 80, whereby the consequences of said interactions are measured as alterations in cellular functions.

82. (Amended) A method of using DNA or RNA *in vitro*, comprising encoding an integrin subunit α10 or homologues or fragments thereof as a target molecule.

83. (Amended) The method of claim 82, whereby a polynucleotide or oligonucleotide hybridises to the DNA or RNA encoding an integrin subunit α10, or homologues or fragments thereof having essentially the same biological activity, and whereby said polynucleotide or oligonucleotide fails to hybridise to DNA or RNA encoding an integrin subunit α1.

84. (Amended) A method of using a human heterodimer integrin *in vitro,* comprising using a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit, or a DNA or RNA encoding an integrin subunit α10 or homologues or fragments thereof, as a marker or target molecule during angiogenesis.

Am'd D35

C22

86. (Twice Amended) A method of using a collagen binding integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, which cells or tissues are of animal including human origin.

C23

87. (Amended) The method of claim 86, whereby said fragment is a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain and the spliced domain.

Am'd D36

88. (Twice Amended) The method of claim 86, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

C24

89. (Twice Amended) The method of claim 86, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

90. (Twice Amended) The method of claim 86, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID NO: 2.

C25

91. (Amended) The method of claim 86, whereby the subunit β is β1.

92. (Amended) The method of claim 86, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

93. (Twice Amended) The method of claim 86, wherein the method is used during pathological conditions involving said subunit α10.

94. (Amended) The method of claim 93, wherein the pathological conditions comprise damage of cartilage.

95. (Amended) The method of claim 93, wherein the pathological conditions comprise trauma, rheumatoid arthritis and osteoarthritis.

96. (Twice Amended) The method of claim 86, wherein the method is used for detecting the formation of cartilage during embryonal development.

C25 Cont

97. (Twice Amended) The method of claim 86, wherein the method is used in detecting physiological or therapeutic reparation of cartilage.

98. (Twice Amended) The method of claim 86, wherein the method is used in detecting regeneration of cartilage or chondrocytes during transplantation of cartilage or chondrocytes.

99. (Twice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or to homologues or fragments thereof having essentially the same activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, which cells or tissues are of animal including human origin.

100. (Amended) The method of claim 99, whereby said fragment is a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain and the spliced domain.

101. (Twice Amended) The method of claim 99, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID No. 7.

102. (Twice Amended) The method of claim 99, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

103. (Twice Amended) The method of claim 99, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid No. 337 of SEQ ID NO: 2.

C29 104. (Amended) The method of claim 99, whereby the subunit β is β1.

105. (Three Time Amended) The method of claim 99, further comprising detecting the presence of an integrin subunit α10 comprising the amino acid sequence shown C30 in SEQ ID NO: 2 or SEQ ID NO: 4, or of an integrin heterodimer comprising said subunit α10 and a subunit β, or of homoloques or fragments thereof having essentially the same biologically activity.

106. (Twice Amended) The method of claim 99, wherein the method is used for C31 determining the differentiation-state of cells during embryonic development, angiogenesis, or development of cancer.

107. (Twice Amended) A method of detecting the presence of an integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the C32 same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1.

108. (Amended) The method of claim 107, whereby said cells are chosen from the C33 group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

C33 Cont

109. (Amended) The method of claim 107, whereby said fragment is a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain and the spliced domain.

Amd D41

110. (Twice Amended) The method of claim 107, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

111. (Twice Amended) The method of 107, whereby said fragment comprises the amino acid sequence from about amino acid No. 952 to about amino acid no. 986 of SEQ ID No. 2.

C34

112. (Twice Amended) The method of claim 107, whereby said fragment comprises the amino acid sequence from about amino acid No. 140 to about amino acid No. 337 of SEQ ID NO: 2.

113. (Twice Amended) The method of claim 107, wherein the method is used for determining the differentiation-state of cells during development, in pathological conditions, in tissue regeneration or in therapeutic and physiological reparation of cartilage.

C35

114. (Amended) The method of claim 113, wherein the pathological conditions are any pathological conditions involving the integrin subunit α10.

115. (Amended) The method of claim 113, whereby said pathological conditions are rheumatoid arthritis, osteoarthrosis or cancer.

C35 Cont

116. (Amended) The method of claim 113, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts, and fibroblasts.

117. (Twice Amended) A method of determining the differentiation-state of cells during development, in pathological conditions, in tissue regeneration, and in therapeutic and physiological reparation of cartilage, comprising using a

C36

polynucleotide or oligonucleotide chosen from the nucleotide sequence shown in SEQ ID No. 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α10.

118. (Amended) The method of claim 117, whereby said polynucleotide or

C37

oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain, and the spliced domain.

119. (Twice Amended) The method of claim 117, whereby said polynucleotide or

C38

oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide comprising the amino acid-sequence SEQ ID No. 7.

120. (Twice Amended) The method of claim 117, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide comprising the amino acid sequence from about amino acid no. 952 to about amino. 986 of SEQ ID NO: 2.

C38

121. (Twice Amended) The method of claim 117, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide comprising the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID NO: 2.

122. (Amended) The method of claim 117, whereby said pathological conditions are any pathological conditions involving the integrin subunit α10.

123. (Amended) The method of claim 117, whereby said pathological conditions are rheumatoid arthritis, osteoarthrosis, or cancer.

C39

124. (Amended) The method of claim 117, whereby said pathological conditions are atherosclerosis or inflammation.

125. (Twice Amended) The method of claim 117, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts, and fibroblasts.

C39

126. (Amended) The integrin subunit α10 as defined in claim 1, wherein the integrin subunit α10 is a marker or target in transplantation of cartilage or chondrocytes.

AM D13

C40

127. (Twice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID No. 2 or SEQ ID No. 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or to homologues or fragments thereof having essentially the same biological activity, for promoting adhesion of chondrocytes, and/or osteoblasts to surfaces of implants to stimulate osseointegration.

AM D13

C41

128. (Amended) A method of using an integrin heterodimer as a target for anti-adhesive drugs or molecules in tendon, ligament, skeletal muscle, or other tissues, comprising using an integrin subunit α10 and a subunit β, or the subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit α10 having essentially the same biological activity, as a target for anti-adhesive drugs or molecules in tendon, ligament, skeletal muscle, or other tissues where adhesion impairs the function of the tissue.

129. (Amended) A method of stimulating, inhibiting, or blocking the formation of cartilage or bone, comprising administering to a subject a suitable amount of a pharmaceutical agent or an antibody which is capable of using an integrin

heterodimer comprising a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit α10 having essentially the same biological activity, as a target molecule.

130. (Amended) A method of preventing adhesion between tendon/ligaments and the surrounding tissue after infection, inflammation, and after surgical intervention where adhesion impairs the function of the tissue, comprising administering [administration] to a subject a suitable amount of a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit α10 having essentially the same biological activity, as a target molecule.

131. (Amended) A method of stimulating extracellular matrix synthesis and repair by activation or blockage of an integrin heterodimer comprising using a subunit α10 and a subunit β or of the subunit α10 thereof or of a homologue or fragment of said integrin, or subunit α10 having essentially the same biological activity.

132. (Amended) A DNA encoding an integrin subunit α10 or homologues or fragments thereof as a target molecule.

133. (Amended) The method according to claim 132, whereby a polynucleotide or oligonucleotide hybridises to the DNA or RNA encoding an integrin subunit α10 or

homologues or fragments thereof and whereby said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding en integrin subunit α1.

134. (Amended) A method of using a human heterodimer integrin comprising using a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, or a DNA or RNA encoding an integrin subunit α10 or homologues or fragments thereof, as a marker or target molecule during angiogenesis.

Please add the following new claims:

135. (New) An RNA encoding an integrin subunit α10 or homologues or fragments thereof as a target molecule.

136. (New) A method of using DNA or RNA encoding an integrin subunit α10 or homologues or fragments thereof as target molecules comprising:

choosing cells expressing the integrin subunit α10 or homologues or fragments thereof encoded by the DNA or RNA and assaying for the presence of the DNA or RNA in the cells.

137. (New) A method of using an integrin subunit α10 as a marker or target comprising:

C42 Cont choosing cells or tissues expressing subunit α10 and assaying for the presence of subunit α10 in the cells.